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ABSTRACT

Admissions at distance education systems is considered for new students (rather than continuing students). Based on a systems analysis, it is noted that there are three major subsystems to carry out the objective of converting applicants into students: the receipt of applications, the allocation of applicants to first year or introductory courses and the offer of places to applicants, and integration of applicants into the institution. The following procedures are discussed: promoting awareness of the distance teaching institution; providing preapplication guidance; keeping records of applications; and analyzing applications. Components of the task of offering applicants admission are as follows: assessing applications, determining whether academic/nonacademic criteria are met, and whether a place is available for the course desired; informing applicants of the result of their application; and analyzing course allocations for the institution. The basic functions of registration are outlined as follows: recording acceptance or refusal; changing an application record into a master student record; distributing the student record to regional/local services and administrative purposes; and analyzing registrations. The admission system functions with the operational cycle of the institution and may encompass serial or parallel operations. An admissions model is outlined, and a flowchart is presented to illustrate the formal information network. The admissions systems of the following institutions are very briefly described: Universidad Nacional Abierta of Venezuela; Sri Lanka Institute of Distance Education; the Free University of Iran; National Extension College, United Kingdom; Everyman's University, Israel; the Allama Iqbal Open University of Pakistan; Universidad Estatal a Distancia of Costa Rica; and Open University, United Kingdom. (SW)

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DERG Papers
Number 2

THE ADMISSION SYSTEM IN
DISTANCE TEACHING INSTITUTIONS

by

H. Zvi Friedman

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1 INTRODUCTION

'Tis distance lends enchantment to the view,
And robes the mountain in its azure hue.'

Campbell, Pleasures of Hope

Distance may lend enchantment, but it also inhibits communication. We know that education is impossible without communication, and, consequently, that overcoming the distance barrier is the first objective of distance teaching.

Understandably, writers on distance teaching have concentrated their attention on teaching activities - these activities, of course, are fundamental. However, the student in a distance learning system is distant not only from the primary teaching activities of the institution, but also from the administrative subsystems supporting that teaching. This has important implications for the design of such systems. One implication is that administrative systems within a distance learning system must aim at unusual flexibility. I say 'unusual' advisedly, because few of us have not experienced the inherent inflexibility of large scale impersonal systems. Recognition of such a tendency is perhaps the first rule of system design in this context, while to achieve flexibility implies anticipation within the system of all likely contingencies. Thus within a distance learning system administrative procedures will contain a multitude of components and permit a multitude of activities. Such components and activities will moreover show a high degree of inter-dependence. To the student, after all, there is only one administration. He will reasonably expect that administration to act in a concerted and co-ordinated way in supporting his studies.

This is the first of a short series of monographs which will examine some of the administrative implications of teaching at a distance. In this first monograph the subject is the system of admission, while subsequent texts will include student support and student assessment.

As a systems analyst involved for some years with the development of administrative systems within a distance teaching context, I have tended towards a systems approach to the task of writing this analysis. Not that I am writing for other systems analysts. My intention is to interest

administrators, but in particular I would hope to sharpen the awareness of those involved in academic and teaching activities towards the administrative processes. In most educational traditions it has been the teacher rather than the administrator who makes policy. Many distance teaching institutions preserve this tradition, while at the same time giving the administrator increasingly sophisticated resources for carrying out his ever more complex tasks. This situation demands that those who make policy and allocate resources possess an informed understanding of the consequences of that policy and the use of those resources.

2 AN APPROACH TO ANALYSIS

Distance teaching techniques are used in widely different ways, for very different purposes, and in highly diverse geographical, economic and social circumstances. From such diversity, is it possible to extract any useful or meaningful generalisations? Or, to put this question rather differently, is it possible to propose a general model of system behaviour within a distance teaching administration?

I think that a general model is possible and potentially useful, given a number of constraints. The first constraint is that the model should related very largely to the 'what needs to be done?' rather than the 'how is it done?'. All institutions will keep records of their students. Some will use a filing cabinet while others will use a computer - different methods supporting a common function. As a second constraint we should restrict the model to what might be called 'formal' distance teaching institutions, excluding non-continuous, non-formal applications, such as the radio campaigns of Tanzania and Botswana for example. The formal distance learning systems show great variety. They include most levels of education, their funding may be from public sources or they may be independent of public funding, they may be universities or correspondence colleges, or departments of traditional teaching institutions, their student numbers may be counted in hundreds or in tens of thousands and they may offer a variety of certification. The general model will not, however, fit all permutations of these variables equally well. It shows a preference for large, publicly subsidised institutions of higher education. Such a preference is not whimsical. These institutions have now become the major exploiters of distance teaching techniques, and greatly outscale earlier examples such as the correspondence schools in student and staff numbers and in their consumption of resources. They are the basis of this study.

A third constraint is largely self-imposed. A distance teaching institution has three major administrative systems; one to administer the general operation of the institution, another to administer the creation and production, or simply acquisition, of teaching materials, and a third to oversee the provision of student services. Concern here is with student admissions, which is one aspect of the system providing for student services.

3 ADMISSION SYSTEM SNAPSHOTS

One way to approach the task of generalising usefully is to adopt a comparative approach, by examining a number of detailed examples followed by a short unifying discussion. Apart from considerations of length, such an approach would be inappropriate in this context. As educational institutions go, distance teaching institutions are young. Their administrative procedures are often, to put it kindly, experimental, and the details are likely to be ephemeral. However, abstracted from actual examples of administrative practice, the student administration model developed in these texts would remain colourless.

The compromise I have adopted is to start with a few very brief descriptions of operational admission systems at a number of national distance teaching institutions. These descriptions I have called 'snapshots' because they are just that - instantaneous pictures taken of subjects in our area of interest, isolated in time. The examples included have no particular virtues commending their selection, but they are probably fairly representative of their type and cultural situation. They are all institutions with which OUCICS has had some degree of association.

Snapshot 1 - Universidad Nacional Abierta de Venezuela (UNA)

UNA advertises its activities in the national press of Venezuela. Most applicants apply through the national university entrance clearing procedures. To apply they must have their secondary school leaving certificate (bachillerate). Applicants allocated to UNA through the clearing procedures are instructed to attend a local centre where they complete registration forms and pay a registration fee. All students are provisionally registered only, until they have completed the first semester introductory course.

Registration documents are sent from local registration centres to UNA's Caracas headquarters where they are recorded onto computer files. From these files, lists and analyses of registrations are made by students' areas of residence. These computer records later form the basis of a student record file.

Snapshot 2 - Sri Lanka Institute of Distance Education (SLIDE)

Courses begin annually, and are advertised in the national press six months in advance of their starting date. Enquirers receive from the Institute by post a handbook and an application form. The administration of applications - and indeed all student systems - is course based. Each course (at present there are four major courses) is administered by a separate section within the Institute, each with a section head and two or three clerks, one clerk being responsible for some 350 student records.

On receipt, application forms go to the section head of the appropriate course. Applicants with the best academic and professional qualifications are selected for interview in Colombo, where their certificates are checked and copied. Selection also takes account of applicants' employment and their proximity to a local technical college for tutorial classes.

Formal offer of a place is made to most interviewed applicants on the occasion of their interview. Formal acceptance of the course offer occurs by payment of the registration fee, following which the applicant receives a letter confirming registration. A record file is now opened for the student, consisting of his application form and copies of certificates. All subsequent correspondence will be copied to this file.

Snapshot 3 - The Free University of Iran (FUI)

Admission procedures are firmly based on a network of local study centres. Applicants must possess a high school diploma and live within an hour's journey of a study centre. They may then ask to sit an entrance examination, held twice yearly at local centres, to qualify for admission. Applicants complete forms for admission at local centres, where lists of successful applicants are displayed as well as being published in national newspapers. Successful applicants return to the local centre to register as full time or part time students. They select their courses with the aid of tutors, and are given their course materials on completion of registration. Students who agree to remain in the service of their country for an agreed period after graduation are not required to pay fees.

Snapshot 4 - National Extension College, UK (NEC)

NEC advertises in the national press. Students can enrol at any time of the year and there are no entrance requirements. Applicants complete a simple enrolment card and enclose their fee with their application.

Payment by instalments is also possible. At NEC headquarters the applicant is given a serial number and allocated a personal correspondence tutor. The enrolment card becomes the basic student record, and is used to record payments and assignment grades.

Snapshot 5 - Everyman's University, Israel (EU)

Courses are advertised in the national press and by widely distributed handbills. Enquirers receive a course handbook and application form, and they can buy sample course materials or view them at study centres. Entry is open, but applicants for the degree programme are recommended to have attained high school leaving standard.

For his first semester of study a student is allowed to register for only one course of the degree programme, but may subsequently take on two or, exceptionally, three courses. Student numbers on courses are restricted by practical constraints only, such as the availability of home kits, tutorial or study centre provision.

Snapshot 6 - The Allama Iqbal Open University of Pakistan (AIOU)

The AIOU has a range of programmes of study, but the Primary Teachers' Orientation Course (PTOC) at present accounts for the great majority of enrolments, with up to 15,000 primary teachers being enrolled for each presentation. Admission to the PTOC is compulsory and free for all the country's primary school teachers. For each presentation, held at six monthly intervals, teachers are nominated by the Education authority of their province. Admission is thus reduced to simply the passing of a list of nominated students from the provincial authority to AIOU.

Snapshot 7 - Universidad Estatal a Distancia of Costa Rica (UNED)

UNED's first application period ran from 13th February until 10th March 1978, for courses beginning in July of that year. During this period an advertising campaign promoted knowledge of the new university, and intending students could obtain the academic guide and application forms from twenty-five locations throughout Costa Rica.

Applicants for the Curso Basico (introductory course) are expected to have matriculated from secondary school and be 23 years or more of age. Applicants who have already completed a General Studies programme at

another university are exempted from the Curso Basico. All applications go before a committee, which will in principle give preference to a family wage earner whose occupation relates to the course of study proposed, and who, in addition, lives in a rural area. The forms for successful applicants are passed for computer input and lists printed for internal use and for printing in national newspapers to inform applicants.

Snapshot 8 - Open University, UK (UKOU)

The UKOU has two admission systems, one for each of its two major programmes of study. For undergraduate foundation (first year) courses, applicants are accumulated onto a computer file from January to July each year. In July the computer allocates applicants to foundation courses, on the basis of course applied for, occupation, sex and region of domicile, and the processes of assigning students to study centre and tutor-counsellors continues while registrations progress. Once registered, students wait until the following February before starting their courses.

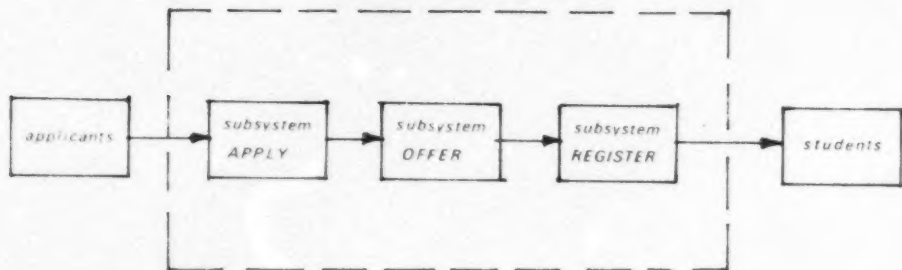
Within the programme for continuing education, courses follow a much looser timetable. Applications for these courses open some months before the course starts, and applicants are allocated on a continuing basis. Once course quotas are full, applicants go onto a reserve list, and may get allocated if earlier applicants drop out.

4 SUBSYSTEMS AND PROCEDURES

First to make a careful distinction. The admission system is the set of subsystems and procedures which administers the entry of new students into the distance teaching institution. It is not in its essentials concerned with continuing students - those who having completed a course enrol for further courses - though it is sometimes the case that in operation these two sets of procedures overlap. This overlap, however, is not discussed in this paper; here we are concerned only with new students, or those whose studentship has lapsed.

With this understanding we are looking at a system well differentiated from the other systems in its administrative environment. We can illustrate its major subsystems as in fig 1.

Fig 1 - The Admissions System



From the essential input and output shown we can identify the primary objective of the admission system as the conversion of applicants into students. Figure 1 also shows that within the system there are three

major subsystems to carry out this objective. The first subsystem deals with the receipt of applications, the second administers the allocation of applicants to first year or introductory courses and the offer of places to applicants, while the third subsystem establishes applicants within the institution.

How close is this model to the real-life snapshots of section 3? At UNA the three subsystems are apparent, even though application is indirect and registration is provisional. Similarly at SLIDE, FUI and others, the three stages are clearly visible. They are not quite so clear in the NEC example. Applications to NEC are unlikely to be refused, so the applicant anticipates registration by sending his fee along with his application. However, the admissions administration does have to go through a process of deciding if the application can be supported, so the three stage analysis is still close enough to be applicable. On the face of it, admission to AIOU's primary teachers' orientation course (PTOC) is an exception in that it appears to do without application, while course allocation and offer are, partly at least, managed externally. Within the context of the institutions we are considering such direct recruiting is an unusual strategy. Most institutions still expect their students to come to them.

subsystem APPLY

The front end of the admissions system is responsible for stimulating and receiving applications. There seem to be four fundamental procedures. Figure 2 illustrates.

Fig 2 - subsystem APPLY

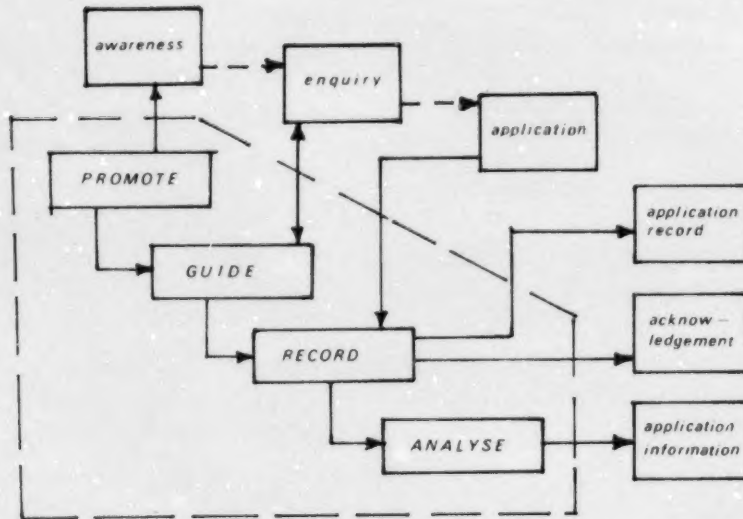


Figure 2 is at a greater level of detail than figure 1, and it shows more of the inputs and outputs associated with subsystem APPLY. During the applications period the four procedures overlap one another in their operation, indeed they often run concurrently. Awareness is an output of promotion, and promotion we expect leads to enquiry, and, in turn, to application. The chief output from this subsystem is an application record which becomes in due course a primary input to the offer subsystem.

procedure 1 promote awareness (PROMOTE)

The need for a distance teaching institution to promote awareness of itself is self evident. For most of the new generation of state subsidised institutions, the attraction of large numbers of applicants is critical to their viability, and anticipated in their operation. Such institutions will draw their students regionally or nationally

rather than locally - they will therefore use advertising media which reach their target population, in terms both of geographical and social coverage. The national or regional press is commonly used, sometimes supplemented by radio and television.

Promotion campaigns are usually coordinated nationally, though this is one aspect where regional or local agencies often have responsibilities for supporting the campaign locally by distributing posters and handbills, organising local advertising, and arranging meetings and information sessions.

Promotion is often a very significant item of expenditure. In a number of countries the heavy investment in national distance teaching institutions is a response to pressing, often desperate, national needs. National drives for literacy, health and rural education, objectives such as stimulating national awareness of democratic ideals, new technologies, or simply of education itself, all demand promotional campaigns of great generality. With such broad objectives the target population may be difficult to identify.

Analytically we can regard the output of promotion as awareness. Awareness generates enquiry, and enquiry becomes the input to the next procedure within the apply subsystem. Figure 2 shows this.

procedure 2 give preapplication guidance (GUIDE)

This procedure is often difficult to disentangle from its logical predecessor, promotion. Promotional and guidance materials are frequently undifferentiated, suggesting that these are functions of equal importance. Few would doubt that the activity of selecting a course of study which may demand several hundred hours of commitment over several years is one which requires guidance, whether this takes the form of a simple handbook or a comprehensive face to face counselling process supporting the printed information.

Institutions differ widely in their perception of the need for preapplication guidance, and consequently in the resources they allocate to it. Those institutions assured of their student numbers,

or less worried by student dropout, may give little attention to preapplication guidance, perhaps preferring to concentrate their often restricted resources onto students who stick with the system. They do, of course have a point. Many, often a majority, of the recipients of early guidance will not become students, while considerable numbers of those that do will stay in the system only briefly.

However, it is commonly recognized that it is not enough simply to capture your target population. Student administrative procedures may recognise that keeping students in the system is a very real problem requiring positive solutions. One way to minimize dropout is to ensure that square pegs fit into square holes, or, in other words, to take some trouble to ensure that students select the courses of study right for them and are aware of the implications of their enrolment. Although dropout is wasteful of resources, it does not always work to the disadvantage of the institution. The commercial correspondence schools and the unsubsidized correspondence units of some conventional universities and colleges may indeed benefit financially from the dropout of paid up students. Where the student is subsidized, however, there is greater motivation to put resources into preapplication guidance since subsidies may well be related to the attraction and retention of specified student populations.

Here again regional agencies have a significant role to play. In giving guidance to preapplicants they may offer face to face discussion sessions, or simply provide the opportunity for prospective applicants to view study materials.

Without doubt, these first two procedures are fraught with difficulty. How do we identify our target population? How do we get through to them when we have done? How do we identify that group of prospective applicants most in need of guidance? It may be wasteful to spread our guidance budget over 10,000 students knowing that we can offer places to only 2,000 - or it may not be if, in doing so, we ensure 2,000 well motivated students within our target group. Clearly the effective use of resources earmarked for promotion and guidance is an important

management objective.

procedure 3 record applications (RECORD)

The application record may be a form, a card, an entry on a list or a computer record. In a complex system it will be all of these at different points in the process. SLIDE and NEC are typical of simple systems where the application-form or card itself constitutes the master application record, and later goes on to become the basic master student record.

Except where the majority of applicants are certain to become students, the collection of large quantities of data from applicants or the transcription of applicant records, say from forms onto computer records, is often uneconomic. Clearly, though, the application record is of wide interest, and not just to central and local administrators. In many institutions the application form will be a vital source of data for research and institutional evaluation. Indeed the technical difficulties within this procedure lie in compromising the demands of selection processes, research interests and so on, with the desire to minimise the size and activity of short-lived records. Not infrequently, the design of the application form provides the first major area of conflict between administrators and institutional researchers, the former insisting on a form which efficiently serves the admission process, while the latter see it as a golden opportunity to collect the data vital to their work. The difficulty that confronts the researchers in defining their needs within the, invariably tight, timescale for producing the form, only serves to exacerbate the conflict.

The application recording procedure has two noteworthy outputs. The first is the application record itself. This becomes in turn essential input to the offer subsystem, linking the apply and offer subsystems together. As a second output, many application recording procedures produce an acknowledgement to the applicant, advising him that his application has been duly received and recorded. An acknowledgement is desirable where application is by mail and where there is a long delay before the applicant learns the result of his application.

procedure 4 analyse applications (ANALYSE)

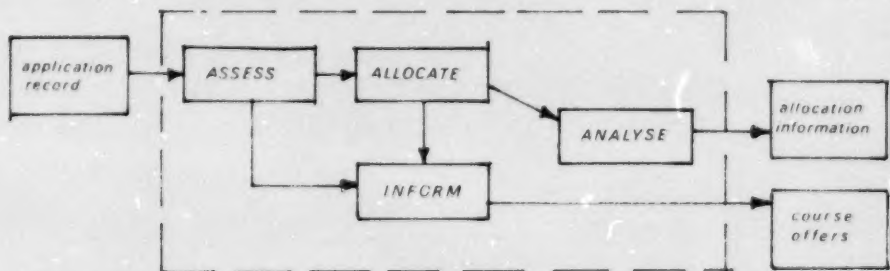
Figure 2 shows 'application information' as the output of this procedure. To progress applications further we require not merely a file of application records, but some collective information about that file, be that information only a count of the number of applications for each course, or some indication of the national distribution of applications. In more sophisticated distance learning systems, analysis will often extend to enquiries, perhaps relating them to applications or publicity campaigns, while applicant populations will be analysed by a variety of demographic, educational, social and economic discriminators. Such analysis has a threefold purpose -

- * administrative: for example, the number of students applying for the mathematics course is essential input to selection procedures
- * evaluative for the institution: are we attracting the right students? (However we choose to define this.)
- * evaluative for course production: it could be that fluctuations in course populations have something important to say about the course.

subsystem OFFER

This subsystem takes the file of application records output by the APPLY subsystem and determines to which applicants course offers should be made. Figure 3, again indicates four component procedures.

Fig. 3 - subsystem OFFER



The application record is first assessed to see if it meets basic eligibility requirements. If it does not we inform the applicant. If it does, the record is input to the allocation process before the applicant is told of the result of his application, which may be the offer of a course place - the chief output from this subsystem. Finally we extract some analyses from this process.

Essentially this subsystem takes each application and asks two questions:

- * is this applicant eligible to become a student of this institution,
and
- * can we allocate a course place to this applicant?

procedure 1 assess applications (ASSESS)

Whereas nonformal distance teaching institutions such as radio schools may be open to all who wish to participate, many formal institutions impose some entrance restrictions. These may be expressed negatively, by denying admission to the unqualified, or positively, by giving preferential weighting to certain qualities, if only the simple quality of having applied first. Application assessment procedures have a variety of manifestations:

- * formal academic qualifications are essential for entry to SLIDE, UNA and UNED, Costa Rica, for example
- * formal qualifications are recommended for some courses. Everyman's is an example.
- * applicants must pass an entrance examination. For example to the FUI.
- * at NEC, like most correspondence colleges, the ability to pay the fees is the most important requirement for entry.

Positive discriminators are usually less apparent. Preference is sometimes given to applicants because of their occupation or their place of residence, less commonly their sex. 'Positive reverse discrimination' is sometimes practised to boost the proportions of female students or the educationally disadvantaged. The UKOU is not unique in exempting applicants with recognized public qualifications from part of the degree programme. Thus although formal qualifications are not required for entry, less study for the award of the degree is required of those that do have recognised qualifications than of those

without.

Application assessment is often fundamental to the social and educational objectives of the institution. It is here that the administrator finds himself with the task of mapping the generalities of institutional objectives onto a set of precise codes, often so that the applicant can select from a list of codes the ones that most closely describe his level of education, occupation, reason for studying and so on. This is not the place to reflect at length on the issues raised by qualities coding, but it is worth observing that the impression of objectivity given by coding systems, particularly when allied to computers, can often be no more than an illusion.

Many problems in this procedure revolve around the mixed objectives of assessment in the educational context. In this procedure we are doing at least two things. We are assessing the applicant's fitness to become one of the institution's students, and at the same time assessing his qualification to pursue the course of study proposed. After satisfying these two counts there is a third step when the offer a place to the applicant can be considered. This distinction between applicant assessment and allocation, however, is a logical one rather than an operational one, and in practice the three steps set out above are often accomplished in a single procedure.

Input to this assessment procedure is the application record, which is also the procedure's output. The record input to the front end of the procedure emerges at the back end slightly modified. In this case the record has been marked to say that it has or it hasn't passed assessment. In a computer record an indicator will have been set, in a manual record someone will have put a tick in a box, perhaps, and moved the form - or forms since they will normally be processed in batches - to the desk of the clerk responsible for allocation.

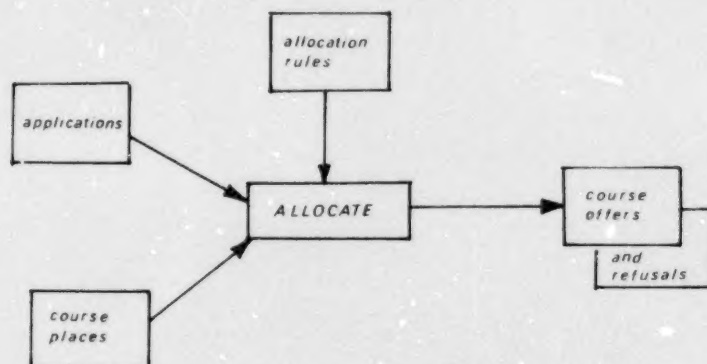
procedure 2 allocate to courses (ALLOCATE)

Before a course place can be allocated to an applicant, three conditions must be satisfied:

- * any academic requirements must be met
- * any non-academic requirements must be met (Can local support services be provided? Can the applicant receive our broadcasts? Does the applicant live near enough to a local centre? and so on.)
- * a place must be available on the course applied for.

The essential inputs and outputs of the allocation procedure are shown in fig. 4.

Fig 4 - Course Allocation Procedure



We have already noted the potential overlap with procedure 1 of this subsystem. In Fig. 4 allocation rules are the operational expression of all the checks imposed on each application in the process of determining if a course offer can be made. In largely manual procedures, many of these checks will have already been made - indeed only records satisfying these checks will usually reach the allocation procedure. The impression of simultaneity given by figure 4 is most appropriate if we consider higher levels of mechanization. Here it is quite possible that all selection criteria will be combined into an integrated allocation procedure. Thus allocation rules will be sets of parameters controlling admission by such factors as:

- * date of application
- * area or region of domicile

- * occupation
- * sex and age
- * prior qualifications
- * course quotas
- * course rules (allowed course combinations etc.)

Allocation to a course can be dependent on random, but highly practical, factors such as the nature of transport services between the applicant's home and a study centre, or the ability of the applicant to arrange his own experimental facilities. Because such determinants are so difficult to apply consistently and effectively, they are perhaps best left as recommendations rather than rules.

In practice the complexity of course allocation procedures seems to vary inversely with the probability of selection. The correspondence colleges tend to have the simplest procedures. At NEC the major consideration is likely to be whether the applicant can be allocated a tutor. Rarely is there great difficulty, and the great majority of applicants can be certain of acceptance. At UNED Cost Rica an admissions committee decides the fate of applications, applying a set of moderately complex rules, while UKOU provides an example of a complex and highly mechanized allocation procedure of uncertain outcome from the applicant's point of view. At SLIDE the course based factor predominates: applicants to the mathematics course are virtually assured of admission with the basic qualifications, while applicants to the management course have a chance of about one in ten only of selection.

Naturally the number of applications and length of the application period are also important influences. At NEC applications are received throughout the year, and will rarely exceed hundreds for any one course. SLIDE's approach is also entirely manual, and although applications are measured in thousands, the number of selection parameters is small and the task is within the capacity of a small group working over some months. At UKOU, however, applications are numbered by tens of thousands, and it would be infeasible to attempt the three-dimensional allocation process manually without changing the timescale of the

operation. Often, however, it is academic factors which complicate the process. For example:

- * can several courses be studied concurrently?
- * do courses have academic prerequisites?
- * are there rules governing course combinations?
- * can alternative course choices be applied for?
- * how flexible is the whole courses programme?

However it is done, objectivity in course allocation remains elusive. Groups like small committees permit sensitivity, but humans are limited in their handling of large volumes and in their ability to make multi-dimensional decisions. Computers are better at both of these tasks, but, as noted earlier, we may be simply hiding our subjectivity within sets of coding tables.

Most of the foregoing has been about allocation rules. Inputs include application records and 'course places available' in the form of course quotas. The output of this procedure shows the variety we have come to expect in distance learning contexts. The process of notifying the results of allocation to applicants is functionally separate from allocation itself, and can be regarded as a distinct procedure.

procedure 3 inform applicants (INFORM)

Successful applicants are informed of the result of their application individually by mail, or collectively by means of lists published in newspapers or displayed at local centres. In the case of SLIDE the successful applicant is called for interview where the offer of a place is confirmed in person. The treatment of unsuccessful applicants shows interesting variety. In some countries they are sent apologetic letters, perhaps with promises of reconsideration in the next round of allocations, while in others they are left to draw their own conclusions from the absence of their name from a list of those offered places.

Individual communication may be accompanied by a fee demand, while finding your name on a list is usually an invitation to attend a local centre to register. A few institutions require, like SLIDE,

attendance at a formal interview, and where it is required a significant function of the interview is likely to be verification of certificates.

procedure 4 analyse course allocations (ANALYSE)

The institution will need to know how many places offers have been made for each course, and, possibly, combinations of courses. At its simplest this information will be a by-product of the allocation procedure.

Course allocation totals represent a second approximation towards the knowledge of student-course populations necessary for planning each year's, or each semester's, activities. The first approximation is from totals of applications, while the third will be from registrations. Each is progressively more exact, but later in time, Such planning figures are always likely to be approximations. The student population overall and course by course rarely remains static for long periods.

The essential input to this procedure is a file of applications with each one marked as to what courses, if any, have been offered to the applicant. Output may be simply course totals, or we may in addition, undertake analyses by demographic or educational factors. The opportunity exists to extract the maximum amount of planning information, particularly relating to such factors as the provision of tutorial support, study centres and so on. For example a regional parameter was probably used to control allocation - now we may want to see the influence of this regional parameter on the overall pattern of allocations.

subsystem REGISTER

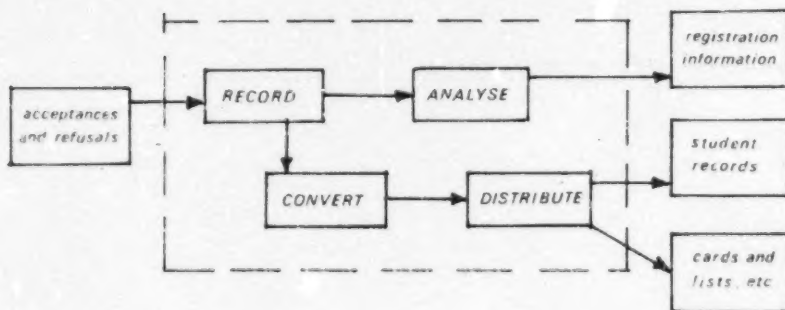
Registration converts applicants with place offers into students. The relationship between the distance teaching institution and its students is essentially different from the relationship with its applicants. Once an applicant becomes a student a contractual relationship is created between the institution, which has promised to provide a

service, and the student, who has agreed to use that service. If such a relationship sounds legalistic, very often it is, though where the contract could be supported by legal sanctions, the institution would normally take care to protect itself in the event of any reduction in its service.

Registration as a procedure is essentially simple. It is open to applicants who have been offered a course place to signify their acceptance by, usually, signing a declaration that they will obey the rules (in practice this was probably done on the application form) and paying the registration fee. Their registration is then recorded.

The basic functions are illustrated in fig. 5

Fig 5 - subsystem REGISTER

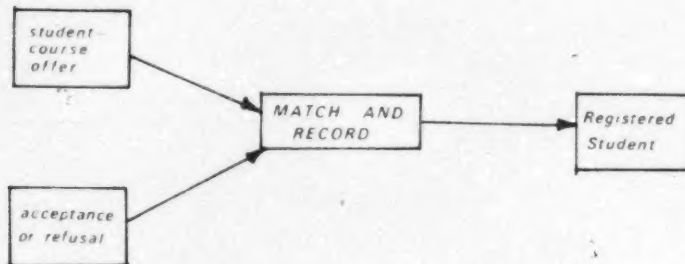


From the systems point of view, input to the register subsystem consists of the course offers output by the offer subsystem and acceptances or refusals from applicants. We need a procedure to record the applicant's response, followed by two procedures required to complete the work of the admission system and an analysis procedure. The main output from this subsystem, and chief output from the total admissions system, is a file of registered students.

procedure 1 record acceptance or refusal (RECORD)

Figure 6 illustrates the essential features of this procedure.

Fig 6 - record acceptance or refusal procedure



For input we start with a file of course offers to applicants. As each applicant indicates acceptance or, perhaps by default, refusal of the course offer, we locate that applicant on the file of offers and mark the record accordingly. When this process is complete we have a file of registered students.

It seems a pity to look for additional complexity in such a simple procedure. A few points, however, should be made. Firstly, what is being recorded is the completion of registration formalities, particularly payment of a registration fee. In a mechanized system this is marked by setting a student status, an indicator which, in this case, says that this record has changed its status from applicant to student.

Secondly there is the problem of the applicant who responds to the offer with a revised course allocation request. In a number of institutions you cannot do this. At SLIDE and FUI, for example, if you want to apply for two courses you must submit two separate applications, while at UNA and UNED, Costa Rica there is a single

point of entry, exemptions not considered. Where course structures are highly modular, as at UKOU, the possible course permutations and alternatives for new students can be very troublesome, both for allocation and registration. Coping with reallocation requests requires a return to the course allocation procedure.

Another common problem is the student who is unable to pay his registration fee within the period allowed. One attitude is to allow the payment period to expire and offer the course to another applicant. However, this attitude would be undesirable if, for example, the student was being sponsored. Sponsor organizations are rarely able to process fee demands as rapidly as individuals, and it may be necessary grant 'good standing' to such a student - that is register him on the firm assumption that fees will be paid in due course.

In its essentials the admission system is now complete, and we have a file of registered students. Between the remaining three procedures and the next major system in succession, the student record system. There is considerable overlap.

procedure 2 convert record (CONVERT)

At this stage a transformation occurs in the application record. It changes from an application record into a master student record. In many simple systems the application form becomes the master student record. It is removed from its place in a pile of applications, and given a permanent home in a filing cabinet.

In more complex systems the application form is transcribed onto a more adaptable medium, perhaps a record card, perhaps a computer record. Often this transcription will be accompanied by additional data collection. Because data supplied at the time of registration, and because, for reasons we have already discussed, often only the data essential for the application procedures is collected on the application form itself, we sometimes ask the newly registered student to supply fresh or fuller data for the more permanent relationship.

Such a data collection activity is a good example of the sort of systems analysis that precedes all well-designed administrative procedures, whatever the machinery used to support them. Additional data collection at this point in the system is expensive in resource terms and would be unnecessary if all the data were collected on the application form. However, many applicants will never become students, while the data for those that do may well be out of date by this time. The administrator has many such delicate balancing acts to accomplish, and clearly the overall efficiency of the administration he serves depends to a great extent in getting most of them right.

procedure 3 distribute record (DISTRIBUTE)

Creation of the student record file is the signal which triggers off a variety of procedures. For example:

- * the allocation of new students to regional or local services such as tutors, study centres, and so on
 - * the creation of records for continuing fee payment systems, assignment and assessment systems
 - * the creation of records for regional and local administration
 - * lists of students for study materials distribution
 - * output of student identity cards
- and so on.

Many of these procedures are likely to belong to other systems. We might consider that procedures to provide local administrations with their records of new students and to produce student identity cards reasonably belong to the admissions system. We are, however, entering an area where there is a lot in common between procedures for new students and procedures for continuing students (those students who have completed admission procedures in a previous cycle). There is no harm in leaving the boundary here a little fuzzy.

procedure 4 analyse registrations (ANALYSE)

The conclusion of registration will leave us with a fairly precise

knowledge of student numbers. As with other analyses, the use of this knowledge may be narrowly administrative or more generally evaluative. For administrative reasons we need to have totals as well as lists of students by their courses, tutors, study centres, fee paying methods, and so on. Those institutions which carry out institutional research will often regard the file of newly registered students at the base for their researches.

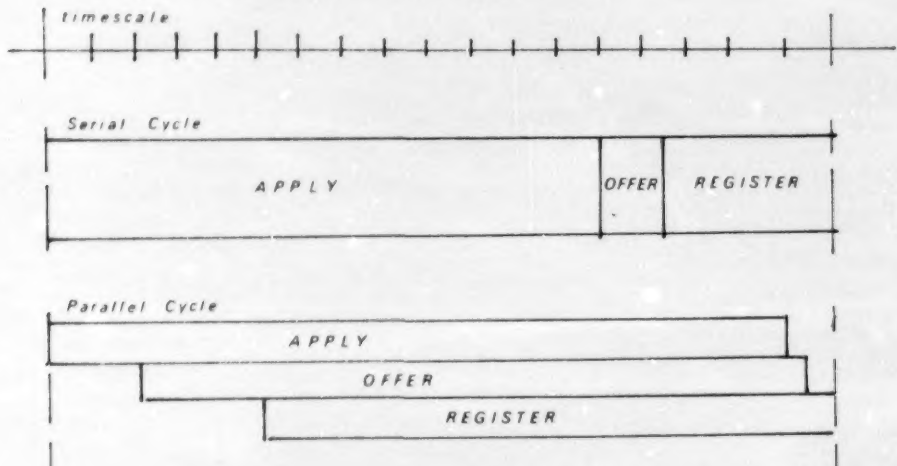
5 CYCLES OF OPERATION

We have so far taken the admission system apart and looked at its components. What should we say about the dynamics and our model?

Possibly the first thing we should say is that two aspects of system dynamics are particularly significant to any understanding of an administrative system. One is information, the other is time. We will consider the aspect of time first.

The admission system functions within the operational cycle of the institution. This operational cycle repeats every year, or every semester, there being usually two or three semesters within the year. Within each cycle each major administrative system operates on a seasonal basis. For some systems the season will last almost the total cycle, for others a small part of the cycle, but usually each system operates for a fixed season during each cycle. From the point of view of the admission system the great operational variety found in practice seems to distill into two significantly different patterns of behaviour. In one of these the three admission subsystems operate serially, that is one follows the other without overlap. In the other, the subsystems operate in parallel, overlapping each other for most of the admission season. Figure 7 illustrates these two different modes of operation.

Fig 7 - Admission cycles of operation



In serial operation, the length of each subsystem's activity is usually very disparate. Within, say, an annual cycle, the collection of applications through subsystem APPLY may well continue for six months or so. On closure of the applicant file, subsystem OFFER will operate as rapidly as possible, perhaps completing its work in a few days if the appropriate technology is available. Subsystem REGISTER will then function for, say, six or eight weeks, giving applicants time to pay their fees and so on. The three stage nature of the admission cycle is very clear in serial operation - each stage concludes with the completion of an admission file, successively of applicants, applicant-course offers and registered students.

With parallel operation the three subsystems operate together for most of the admission season - the sequence of apply, offer, register applies to each individual application rather than the whole applicant body. Here the intermediate applicant and offer files are very short-lived, and a file of registered students is built up throughout the admission season.

In many distance learning systems the admission cycle is attached directly to a programme of study, and since programmes of study are often of different lengths, there may be several admission cycles in operation simultaneously but quite independently. It is not uncommon for programmes of study to have separate administrations with independence in most matters of operation, as a SLIDE and AIOU. At UKOU too, two major programmes of study operate in almost complete dissociation, one using serial admission, the other parallel.

The chief advantage of parallel admission is rapid feedback of applicant results, particularly to the student, who has a firm basis on which to prepare for his studies if he chooses to, but possibly also to the institution, which obtains a committed student population earlier. There is also a greater chance of avoiding the sort of workload peaking associated with the 'all at once' approach. And, excepting complex variants which use strategies like reserve lists and qualified offers, the parallel method is basically simpler to operate. For institutions with devolved functions, it can also operate successfully via local centres.

The disadvantages of parallel admission are the limited control it gives over the characteristics of the final student population, and the limitations it may impose of freedom of action. It sometimes becomes necessary, even in the best run institutions, for a course on offer to be withdrawn during the admission period, and obviously it is less painful to change plans before firm offers have been made and accepted.

With serial admission we can avoid these disadvantages. If the student population profile is particularly important, perhaps in its balance between occupations, the sexes, between courses and areas of residence, or simply choosing the best qualified of all applicants, then serial admission offers the opportunity of greater control. And it preserves a greater measure of flexibility if a change of plan is unavoidable.

Operationally, serial admission can present considerable problems, particularly if the institution wishes to exercise sophisticated control over the student population. The UKOU's undergraduate allocation, for example, is based on control by 5 courses, 13 regions, 14 occupation groups and sex. To put even 20 or 30 students into each of the 1820 boxes of this matrix requires a file of some 50,000 applicants all ideally distributed. In reality the file is never ideally distributed, but then there is no need to find occupants for all the boxes. Matching the University's requirements to the realities of the applicant reservoir does, however, require that we optimise the allocation process by being able to repeat it with a succession of parameter values until we reach an acceptable compromise between what the University's policy demands and what the actual composition of the applicant file can offer. It is unlikely that an operation such as this could be accomplished without a computer of moderate power.

Serial admission also implies a long wait - for early applicants this could be months or more - while the large file is being built up. Much can happen to an applicant's motivation during this time. Then there is the problem of workload peaking. Even with a computer we gain only partial mastery of such peaking. Many support operations will be manual. All course reallocations resulting from applicants changing their mind,

for example, require manually raised transactions. Finally, serial admission makes it very difficult for applicant allocation to be carried out at regional centres.

6 A MODEL OF AN ADMISSION SYSTEM

This section serves both to summarise our discussion of the admission system, and, at the same time, say something about the essential dynamic of information. In figure 8 I have reassembled the system we have been discussing in such a way as to make it easier to talk about the admission system as an information network. I have added number tags to the diagram to facilitate cross-reference to the text.

The diagram has two parts. To the right of the broken double line are the internal components of the system, connected with flowlines which indicate the passage of information from one to the other. The flowlines suggest the chief direction of information flow and like the system components these seem to be the essential ones. To the left of the broken double line lies the part of the model system's environment with which it most closely interacts.

If the abstraction represented by figure 8 is to be useful, it must help us to understand the basic information dynamics of the admission system. We will take each number tag in turn.

- 1 The first essential information transfer is for the distance learning system (DLS) to convey its philosophies and details of its courses to the promotion operation. These philosophies and courses provide the fundamental motivation behind the whole admission system.
- 2 These same philosophies and course details also provide parameters to control the application assessment and course allocation procedures.
- 3 Promotion exports knowledge about the distance learning system and what it has to offer, to the target population - information now travels outside of the institution...
- 4 where it generates enquiries. The information flow here is clearly two-way - the institution must satisfy the enquiry, whether by providing a handout or a comprehensive guidance service.
- 5 Recording of enquiries is an optional extra, but it can give important information. Ideally we should record the nature of the enquiry and the advice given to satisfy it.

- 6 Outside of our system enquiry converts to application.
- 7 The transfer of information from the applicant to the recording procedure is fundamental, while in some cases...
- 8 the recording procedure may respond by issuing an acknowledgement of receipt.
- 9 The recorded application goes forward for assessment and allocation to courses.
- 10 The result of the application goes to the applicant,
- 11 who may signify his acceptance, and in due course register.
- 12 Registration as a student is confirmed with the issue of registration documents, such as a student identity card.
- 13 Other users of the admission system, apart from the student, are provided with their required data.
- 14 We noted in section 4 that each subsystem has its analysis procedure.
- 15 If we record details of enquiries (tag 5) as well, we can make comparisons with our applicant analyses, and obtain insights into how well our promotion and guidance procedures are working.
- 16 This is a feedback loop. Its purpose is to sense information about the whole system and feed it back into the operation of the system.

All distance teaching ventures start with sets of assumptions about students, target populations, what courses to offer, and so on. The institution then builds its structure on the basis of these assumptions. As the institution progresses it gains information, and the uncertainty within those original assumptions is reduced (this, after all, is what information means). Now a new layer of assumptions overlays the previous one, and the process of assumption followed by information, new assumption, new information, cycles on continually.

There are at least two sorts of information network contributing to this process. The obvious one is the formal network. The analysis procedures which we took note of earlier are part of this formal network. We noted that these analyses had two types of function. One

was narrowly administrative. It provided the essential day to day facts and figures necessary for the operation of the procedure. The other function of the analyses was to provide continual measurements of the nature, volumes and frequencies of essential data as it passes through the system. With these analyses we have a number of formal procedures, just as the recording of applications is a formal procedure, (although it is often the case that the formality of this information analysis procedure is less well recognised operationally than other more mechanical procedures). Analyses of applications, course offers, registrations and possibly enquiries, are the formal outputs of these procedures. This output is processed by a decision-making agency, perhaps a committee, perhaps a single administrator, and decisions taken on how to improve or modify the operation of the system.

In this way the system formally controls its own operation, and, by a process analogous to natural selection, it improves its adaptation to its environment, ensuring continuity to pursue its objectives, by reinforcing successful decisions and reversing unsuccessful ones.

Figure 8 illustrates this formal information network. There is another and less obvious information network which is not shown - the informal information network. The informal network attracts information into the system about all aspects of its operation. Often, and this is one reason why it is particularly valuable, where there is no formal sensory mechanism. The applicant, for example, who contacts the office three weeks after mailing in an application so far unacknowledged, is making a comment on the responsiveness of the system (which, in this case, includes the postal service). The informed administrator will know whether this delay is exceptional, or whether frequent such complaints indicates a weakness that requires investigation.

Before concluding this section on the theme of information and control in the admission system, we should briefly acknowledge a third dynamic, the dynamic of policy. We have talked a fair amount about the issues confronting the administrator in the admissions area without using the word 'policy'. But all institutions have policies and those policies, as well as expediencies, determine the way that information entering the system is interpreted and used to influence operations, while at the same time being themselves influenced by the information networks,

formal and informal.

Finally, note that figure 8 provides another axis of analysis. Immediately to the right of the system boundary shown by the broken double line, are the system functions or procedures that interact directly with agencies outside the system. These communicate down to a second level of what we might call central procedures, the internal organs of the system, and these in turn down to a third level of evaluative and exploratory procedures which feed the information networks.

7 CONCLUSION

In any teaching system the administrator is called upon to develop and operate a set of procedures which admit students into the system, maintain a service to the student while he is within the system, and finally direct his exit from it. In distance teaching institutions the nature of this set of procedures is likely to be very different from parallels in conventional face to face teaching systems. In the conventional teaching situation the student's problems with studies, fees, or personal matters, can usually be resolved without major upset, within administrative systems which are small in scale, personal and mostly manual. In a word, they are flexible. In the major national distance learning systems the challenge of adapting the system to the individual student is much more formidable. These large institutions have complex objectives, they are innovatory in their approach to teaching, both in their curriculum and in their use of integrated technologies. And, of course, there is the obstacle of distance. In such a context administrative systems can become correspondingly large and complex.

Slowly, and painfully perhaps, we are learning that there is genuine enmity between size and flexibility in administrative systems. For the educational administrator in particular, the real challenge is to create systems where these dimensions can coexist the harmony.